



Each part of the eye examination at the Infants' Vision Clinic is carefully planned to entertain the baby and to inform the alert physician.

HOW WELL DOES YOUR BABY SEE?

Early testing and the pursuit of new concepts in home training can prevent many minor visual problems from leading to more serious trouble later on.

by **Rebecca Mlynarczyk**, P/M Associate Editor

The man behind the elephant mask was Dr. David FitzGerald, an optometrist at the Infants' Vision Clinic. Talking and waving to attract his young patient's attention, Dr. FitzGerald gradually moved farther and farther away. Next he twirled a large black-and-white striped cylinder, this time using a squeaky pink pretzel as an attention-getter. When the doctor had to put a cup-shaped eye patch on the baby, he first put one on himself, making it seem like a funny game. As a finale Woody Woodpecker—

er—a color cartoon—was projected on the far wall of the clinic. Dr. FitzGerald stood beside the screen, telling about Woody's exploits.

The act was an obvious hit with Glenn Johnson, the eighteen-month-old patient, but its purpose was not Glenn's entertainment. His parents were worried because Glenn's right eye seemed to turn out slightly, and his pediatrician had arranged for an examination at the Infants' Vision Clinic. While Dr. FitzGerald "played" with Glenn, the clinic's co-chief, Dr. Elliott B. Forrest, care-

fully observed the baby's eyes with a variety of optical instruments and made notes on Glenn's card.

The Infants' Vision Clinic is a recently established department of the Optometric Center of New York, a community institution with teaching and research programs in a wide range of optometric specialties. The Center, founded in 1956 as an out-growth of Columbia University's Optometry Clinic, is now an adjunct institution of the new State College of Optometry at the State University of New York.

For the next part of the examination Dr. FitzGerald sat Glenn down at a child-sized table and gave him a simple puzzle with cut-outs of a circle, square, and triangle. After a half-hearted attempt to fit the triangle into the round hole, Glenn seemed to lose interest. And when six small wooden blocks were stacked on the table, Glenn quickly knocked them down. Unable to build them up again, he became frustrated and banged the blocks vigorously on the table. The entire session was videotaped so that the doctors could study Glenn's responses later on.

The examination completed, both doctors talked with Glenn's parents, who had anxiously watched the procedures. Dr. Forrest explained that the tests showed that Glenn's eyesight was normal for his age.

Visibly relieved, the Johnsons were puzzled when Dr. Forrest went on to say, "But there are several indications that Glenn's vision isn't what it ought to be."

Dr. FitzGerald elaborated, "Most people think of vision just as acuity or sharpness of sight. Actually vision is a much broader thing. A child who is neither nearsighted nor farsighted has good eyesight, but he doesn't necessarily have good vision. He must also be able to interpret what he sees and act accordingly. His eyes must work together and must relate to the way he coordinates the two sides of his body."

The doctors explained that some of their tests were designed simply to check Glenn's eyesight. By having Glenn watch the spinning striped cylinder, for example, the doctors learned that his visual acuity was normal and that both eyes had equal discrimination ability. However, other tests, such as the puzzle and building blocks, were designed to check Glenn's overall visual status. Most babies of Glenn's age enjoy working at simple puzzles and building block towers. Glenn's difficulty at these tasks and his lack of interest showed that his hand and eye coordination was poor. In other words, he didn't match what he saw with what he did.

The doctors told the Johnsons that there were many things they could do at home to help improve Glenn's vision. For example, since Glenn needed special practice in manipulating objects, judging sizes and shapes, and learning to maneuver his own body, he should be encouraged to work puzzles, build with blocks, and play with a ball that was big enough to require using both hands to catch it. Other



A simple puzzle tests a nine-month-old patient's hand-eye coordination, a crucial factor for good vision.

games and eye exercises that would help Glenn were explained in a pamphlet that the doctors give to all the parents.

As Glenn and his parents were leaving, Mrs. Johnson made arrangements to bring him back to the Clinic in three months' so the doctors could check his progress.

According to Dr. Forrest, Glenn's seemingly minor visual problem is not uncommon. Most babies who come to the Infant's Vision Clinic have problems that appear rela-

tively insignificant. Yet, however trivial these problems seem in a year-old-baby, they are the very ones that may cause learning difficulties if they go untreated until the age of five or six.

For a child with undetected visual problems, the first real trouble often starts in school. He may not be able to keep up with other children in games that require good muscular coordination or the ability to judge distances. Furthermore, regardless of his intelligence, he may have



The doctors observe the speed of the baby's visual responses to the stripes on a spinning drum.

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great difficulty in learning to read.

Unfortunately, the type of visual problems that may cause learning difficulties usually cannot be spotted by the time-honored eye chart. More often than not, poor readers have 20/20 vision, and for this reason their real visual difficulties go undetected and untreated for years. Often these youngsters become so discouraged by their early failures they stop trying, and consequently fall farther and farther behind.

When visual difficulties are detected during the crucial years from birth to age three, children respond much better and faster to corrective therapy. Moreover, visual problems discovered during infancy often require only simple treatment.

There are various ways in which a parent can tell if his baby's eyes

are many subtle indications that a baby may have a visual problem. For instance, retarded visual development may cause a child to be late in crawling or walking. A baby with faulty vision may be unable to judge distances accurately and consequently may fall and stumble more than other children.

When a visual difficulty is suspected, the baby should have a thorough eye examination as soon as possible. Today there are a number of techniques to test even a newborn's vision. One of the most sophisticated of these methods currently being developed by the Department of Research of the Optometric Center of New York uses a computerized device to record the infant's brain waves as he watches various patterns of light on a screen. By analyzing the brain waves, the doctors can determine what the baby has seen. Using this method, doctors have learned that newborns see more—and at greater distances—than was thought in the past.

The whole field of visual therapy for babies is so new, however, that

If tests reveal that a baby has a visual problem, the doctors prescribe a simple program of visual training, such as that given Glenn's parents. In a few cases, glasses may be prescribed, and, if a baby's eyes are severely crossed, a simple operation may have to be performed to correct the defect. But even in such cases, the really important thing is to train the eyes to work properly as a team. In many instances, such therapy may even eliminate the need for surgery.

In many cases, says Dr. Forrest, parents can give their child all the treatment he needs right at home. In fact, many parents are excellent therapists. In those rare cases where the parents can't cooperate, the child may need to attend the Optometric Center's Visual Training Department for regular therapy sessions.

Although the Clinic's treatment program is basically simple, the results so far have been extremely encouraging. "Many parents say they can actually see their babies making progress," Dr. Fitzgerald said. "Some say their children's dispositions have improved as their vision has and that they take pride in their new accomplishments."

Because good vision is essential for the development of so many other skills, the Infants' Vision Clinic advises all parents to follow a simple exercise program to encourage their babies' visual progress and prevent future problems. For example, since infants develop their earliest visual skills by watching bright spots and shadows, parents should keep a dim light on in the baby's room during the night so that if he awakes, he has something to look at. To make sure that the light stimulates each eye from each side, parents should regularly change the child's position in his crib. Mothers should encourage their infant to look at them from different positions by feeding the baby from alternate sides. (Mothers who breastfeed their babies naturally shift the child from side to side, but mothers who bottlefeed often forget to do this.)

Because a baby's eyes are attracted more to unusual objects than familiar ones, he should be moved from room to room during the day; the varied surroundings will catch his attention and help him learn to control his eye movements. Another valuable kind of visual stimulation can be provided by hanging a colorful mobile about six to eight feet from the crib so that it is in line with the baby's gaze as he looks through the crib rails. (Of course, it's also (Continued on page 106)



Fathers themselves, both doctors know how to make a baby feel at home, even under unfamiliar circumstances.

are not developing as they should. For example, observation may show that one of the infant's eyes turns inward or outward, that his eyes appear to cross. The eyes of most young infants do wander at first, but if they're not working together by the time the baby is three months old, an eye examination is definitely called for.

A visual difficulty may also be suspected if a baby constantly rubs his eyes or has frequent sties. In addition to such obvious signals, there

specialists still have only a rough idea of whether a child's visual development is normal for his age. As Dr. Forrest explained, "Many of the previous guidelines for normal visual development were based on generalizations rather than precise measurements. In our work at the clinic we are trying to determine scientifically the normal range of vision for babies in every stage of development. For this reason, we keep extensive records and do repeated follow-up examinations."

YOUR BABY'S VISION

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a good idea to hang a mobile inside the crib so that the infant can look at and handle objects close to him.) To encourage the proper development of hand-eye coordination, parents should play peekaboo and patty-cake with their babies.

By the time a child is a year old, he should have begun to crawl, and this activity, specialists have found, is essential to proper visual development. When a child crawls, he discovers that his body is bilaterally developed, balanced on both sides. And he learns to use his eyes together to get a feeling of where his body is in space, to judge distances, and to coordinate the movements of his arms and legs.

Most babies progress through several different stages of crawling before beginning to walk. At first they crawl with their arms alone, pulling their legs up behind them. Next they move the arm and leg on one side of the body and then the opposite arm and leg. In the most advanced stage infants move the opposing arm and leg simultaneously.

Greatly different eye motions are

involved in each stage of crawling. Thus, as a baby progresses from one stage to the next, he is also developing new visual skills. In fact, it has been observed that children who skip one or more of these crawling stages often have visual trouble later on. Researchers have discovered, by questioning parents, that a great many youngsters who have poor coordination of the two eyes, read words incorrectly, or have difficulty concentrating on visual tasks either had never crawled or had crawled only briefly before they began walking.

Because crawling not only helps a baby develop the coordination needed for walking but also directly influences his visual development, parents shouldn't urge children to walk before they've done lots of creeping and crawling. Instead, they should actively encourage their babies to crawl by frequently letting them out of their playpens and allowing them to explore the house freely.

For proper visual development, infants not only need to see lots of different objects—they need to feel and sometimes to taste things in order to verify and expand their visual knowledge. One way for parents to make sure their babies get lots of experience

with different objects is to set up a play cupboard containing objects of various sizes, shapes, and textures—a clean rag, a small coffee pot, other pans, a ball made of yarn, and so forth. As the child plays with these objects, he will also learn the differences between top and bottom, inside and out, hard and soft, rough and smooth.

It shouldn't be surprising that the visual training program recommended for all babies contains activities which may seem at first to have little to do with eye-training. After all, all of the movements and activities of a sighted person involve seeing and perceiving—making sense, that is, of what we see—and behaving in accordance with that. We tend to think that seeing permits us to walk easily from here to there, but it works the other way around too. Learning to walk from here to there trains the eyes and the mind in proper habits of seeing. Because the sense of sight is so precious, a child's visual development shouldn't be left to chance. Parents should foster good vision and forestall problems by making sure their baby's eyes have been properly checked, and by following the simple—but important—home guides to good development.

HIGH COST OF LIVING

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freeze or can your own fruits, juices, vegetables, and game. In addition to the money saved, some preserved foods taste better than factory-frozen or canned goods. For maximum nutritional value, only the freshest and highest quality of foods should be preserved.

Among the most effective ways of cutting grocery costs is forming or joining a food co-op. This arrangement, more and more popular as food costs continue to rise, involves banding together with friends, neighbors, or relatives. Thus, instead of buying meat and vegetables in local stores, co-op members can take turns traveling to wholesale depots and warehouses. A successful co-op demands full co-operation from all group members, but many families feel that the savings—up to 25 per cent on food bills—are well worth the effort.

The co-op idea can be used in other ways: for babysitting, vacations, sharing tools for home workshops, joining together to rent an indoor tennis court for the winter season, and so on.

LEARN TO DO IT YOURSELF

With the cost of labor skyrocketing, more people are tackling simple home maintenance and repair chores themselves. Of course, not everyone is temperamentally suited to paint a house (indoors or out), but those who are can save a great deal of money by wielding their own brush or roller. Spurred on by the do-it-yourself trend, American industry has developed many attractive products (from linoleum tiles to wood paneling) which can readily be installed by novices.

A good book on home repairs will teach you how to keep your appliances in good condition, do minor plumbing, and handle simple electrical and household repairs. The equipment required is not exotic or expensive—a hammer, pliers, screwdriver, screws, and nails will do nicely.

Many repair bills can be avoided simply by learning to take advantage of the warranties that come with most home appliances. List warranty expiration dates for all new appliances in a notebook and then carefully check each appliance's performance just before the warranty expires. If it isn't operating to satisfaction, have a company serviceman fix it or take it to the dealer for free repairs.

If the warranty specifies that the appliance is to be serviced locally and you cannot get satisfaction from the retailer, write directly to the manufacturer, stating specifically what the problem is and asking to have either a factory serviceman or some recommended local service center repair the unit. As a last resort, you may have to contact your city's consumer protection unit or Better Business Bureau to get satisfaction, but it is your right and should be exercised.

A way to enjoy yourself while you save is to join the growing number of home sewers and craftsmen. Knitting, crocheting, and sewing are more popular than ever before, and homemade dresses, scarves, sweaters, hats, vests, and so on down the list are right in fashion. Moreover, many modern patterns are surprisingly simple to follow.

Other ways of reducing home operating expenses seem so obvious as to need no mention, but often they are overlooked. For example:

• Your refrigerator uses less electricity if placed away from the oven or sunny window.

• Cracks and crevices around windows and doors can add as much as twenty per cent to your fuel bills. So be sure your windows are as airtight as possible. Weatherstripping and putty are easy to apply and effective in keeping out drafts.

• If you have an oil furnace, always use the proper grade of fuel for your heating unit. Too heavy a grade causes smoke and soot; too light a grade increases fuel costs. Also, keep the fuel tank filled even during the summer to prevent any damage from water condensation or dirt. Fortunately, too, fuel prices are usually lowest during the summer.

• Summer is also the best time to have furnaces and boilers checked and excess soot removed. Neglecting such annual maintenance is a false economy.

MINIMIZE YOUR MEDICAL COSTS

Adequate health insurance is a must in case an emergency arises. Make full use of the group insurance plan offered by your employer or other organization to which you belong. Before signing up for any individual plan, always read the policy carefully to make sure that the insurance company is registered in your home state, that any escape clauses (conditions under which the plan will not pay full benefits) are not weighted too generously in favor of the insurance company, and that renewability is guaranteed.

Every member of the family should have an annual medical check-up. This actually saves money in the long run

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